No. 200400176

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Kelley Bean Co. Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

BEAN, FIELD

'Orion'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of Washington, D.C. this seventh day of December, in the year two thousand and five.*

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

REPRODUCE LOCALLY. Include form number and date on all reproductions. Form Approved - OMB No. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME	3. VARIETY NAME
Kelley Bean Co. Inc.	99124	'Orion'

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*	5. TELEPHONE *(Include area code)*	FOR OFFICIAL USE ONLY
2407 Circle Drive P.O. Box 2488 Scottsbluff, NE 69363-2488	(308) 635-6438	PVPO NUMBER 200400176
	6. FAX *(Include area code)* (308) 635-6899	FILING DATE April 12, 2004

7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.)*	8. IF INCORPORATED, GIVE STATE OF INCORPORATION	9. DATE OF INCORPORATION
Corporation	Nebraska	RGS 4-6-04 1997

10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. *(First person listed will receive all papers)*

Ron Shellenberger, Breeder
ProVita, Inc.
P.O. Box 628
Kuna, ID 83634

FEES RECEIVED
FILING AND EXAMINATION FEES: $ 3652.00 DATE 4/12/2004
CERTIFICATION FEE: $ 682.00 DATE 9-09-2005

11. TELEPHONE *(Include area code)*	12. FAX *(Include area code)*	13. E-MAIL
208-463-7624	208-442-6433	ron@provita-inc.com

14. CROP KIND *(Common Name)*	16. FAMILY NAME *(Botanical)*	18. DOES THE VARIETY CONTAIN ANY TRANSGENES? *(OPTIONAL)*
Dry Edible Bean	Leguminosae	☐ YES ☒ NO
15. GENUS AND SPECIES NAME OF CROP	17. IS THE VARIETY A FIRST GENERATION HYBRID?	IF SO, PLEASE GIVE THE ASSIGNED USDA-APHIS REFERENCE NUMBER FOR THE APPROVED PETITION TO DEREGULATE THE GENETICALLY MODIFIED PLANT FOR COMMERICALIZATION. _____
Phaseolus vulgaris	☐ YES ☒ NO	

19. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)

a. ☒ Exhibit A. Origin and Breeding History of the Variety
b. ☒ Exhibit B. Statement of Distinctness
c. ☒ Exhibit C. Objective Description of Variety
d. ☒ Exhibit D. Additional Description of the Variety *(Optional)*
e. ☒ Exhibit E. Statement of the Basis of the Owner's Ownership
f. ☒ Voucher Sample *(2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository)*
g. ☒ Filing and Examination Fee ($3,652), made payable to "Treasurer of the United States" *(Mail to the Plant Variety Protection Office)*

20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act)*
☐ YES *(If "yes", answer items 21 and 22 below)* ☒ NO *(If "no", go to item 23)*

21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES?
☐ YES ☐ NO
IF YES, WHICH CLASSES? ☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

22. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☐ YES ☐ NO
IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS.
NA FOUNDATION NA REGISTERED NA CERTIFIED
(If additional explanation is necessary, please use the space indicated on the reverse.)

23. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES?
☒ YES ☐ NO
IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. *(Please use space indicated on reverse.)*

24. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT *(PLANT BREEDER'S RIGHT OR PATENT)*?
☐ YES ☒ NO
IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. *(Please use space indicated on reverse.)*

25. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Owner(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER	SIGNATURE OF OWNER
Robert Kelley	
NAME *(Please print or type)*	NAME *(Please print or type)*
Robert Kelley	
CAPACITY OR TITLE	DATE
President	03/25/2004
CAPACITY OR TITLE	DATE

(See reverse for instructions and information collection burden statement)

ST-470 (04-03) designed by the Plant Variety Protection Office using Word 2002.

INSTRUCTIONS

20040176

GENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be received in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to reproduce the variety, or for tuber reproduced varieties verification that a viable *(in the sense that it will reproduce an entire plant)* tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for $3,652 ($432 filing fee and $3,220 examination fee), payable to "Treasurer of the United States" *(See Section 97.6 of the Regulations and Rules of Practice.)* Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfiled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of $432 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

Plant Variety Protection Office
Telephone: (301) 504-5518
FAX: (301) 504-5291
Homepage: http://www.ams.usda.gov/science/pvpo/pvp.htm

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority and provide evidence that name has been cleared by the appropriate recognized authority before the Certificate of Protection is issued. For example, for agricultural and vegetable crops, contact: Seed Branch, AMS, USDA, 10301 Baltimore Avenue, Suite 401 NAL Building, Beltsville, MD 20705. Telephone: (301) 504-5682 http://www.ams.usda.gov/lsg/seed.htm.

ITEM

19a. Give:
(1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
(2) the details of subsequent stages of selection and multiplication;
(3) evidence of uniformity and stability; and
(4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified

19b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:

(1) identify these varieties and state all differences objectively;
(2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
(3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.

19c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.

19d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, *etc.*

19e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.

20. If "Yes" is specified *(seed of this variety be sold by variety name only, as a class of certified seed)*, the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. *(See Regulations and Rules of Practice, Section 97.103).*

23. *See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.*

24. *See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.*

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22. CONTINUED FROM FRONT *(Please provide a statement as to the limitation and sequence of generations that may be certified.)*

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23. CONTINUED FROM FRONT *(Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)*

First commercial sale was May 15, 2003 to bean growers in Western Nebraska.

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24. CONTINUED FROM FRONT *(Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)*

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. The fees for filing a change of address; owner's representative; ownership or assignment; or any modification of owner's name is specified in Section 97.175 of the regulations. *(See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)*

ST-470 (04-03) designed by the Plant Variety Protection Office using Word 2002.

Exhibit A

Origin and Breeding History of
Great Northern Bean 99124 (Orion)

A cross was accomplished between great northern 'Beryl' as male parent and great northern 'Matterhorn' as female parent in the greenhouse during the winter of 1996-1997. Great northern 99124 was derived from the progeny of this cross. Following is an outline of the selection and multiplication.

Matterhorn X Beryl	-	Winter of 1996-1997	
F_1 derived bulk harvest	-	Greenhouse Spring 1997	
F_2 single plant harvest	-	Field 1997, Twin Falls, ID	In this generation there was segregation for vine length, maturity, seed size, plant height, pod location, and seed shape. Selection was made for higher yield, larger seed size, (>1350 seed/lb.), more upright plant structure with higher setting pods, and selection for maturity.
F_3 single plant derived bulk harvest	-	Greenhouse Fall 1997	
F_4 bulk harvest	-	Field 1998, Indio, CA	
F_5 single plant harvest	-	Field 1998, Twin Falls, ID	Selection was made for higher yield, larger seed size, (>1350 seed/lb.), more upright plant structure with higher setting pods, and selection for maturity.
F_6 single plant derived bulk harvest	-	Greenhouse Spring 1999	

F_7 bulk harvest	-	Field 1999, Twin Falls, ID	Early seed increase was initiated from one F7 derived plant for early performance trials and evaluation.
F_8 single plant harvest	-	Field 2000, Twin Falls, ID	Selection was made for higher yield, larger seed size, (>1350 seed/lb.), more upright plant structure with higher setting pods, and selection for maturity.
F_9 single plant derived bulk harvest	-	Field 2001, Twin Falls, ID	Found to be uniform and stable.
F_{10} seed increase	-	Field 2002, Twin Falls, ID	Found to be uniform and stable.
F_{11} seed increase	-	Field 2003, Twin Falls, ID	Found to be uniform and stable.

By carefully evaluating seed stocks on a plant by plant basis in 2001 through 2003; the variety 99124 has been found to be uniform and stable and free of any genetic variants since the F8 generation.

Exhibit B
Statement of Distinctness

Great northern 99124 ('Orion') is most nearly like the great northern variety 'Beryl'. Great northern 99124 differs from the variety 'Beryl' in the following ways.

1. Great northern 99124 has larger seed size than 'Beryl' as shown below in a 5 year/location mean.

   'Beryl' - 1,528 seed/lb.

   99124 - 1,340 seed/lb.

   See attached T-test analysis.

2. Great northern 99124 has a longer beak than 'Beryl' as shown below by the mean of twenty randomly selected sample pods per variety grown in Twin Falls, ID in 2003.

   'Beryl' - 8.3 mm

   99124 - 10.0 mm

   See attached T-test analysis.

3. Great northern 99124 carries the "I" gene for bean common mosaic virus resistance but not the bc-1(2) gene.

   Great northern 'Beryl' carries both the "I" gene and the bc-1(2) gene for bean common mosaic virus resistance.

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2000-2003 Plant Variety Protection
Seed Size T-Test for 99124 vs. Beryl

Data file: 124-BERYL
Title: **2000-2003 99124 vs Beryl PVP**

Function: T-TEST

SAMPLE ONE: **GN 99124**		SAMPLE TWO: **GN Beryl**	
Variable 1 : **Seed Size (sd./lb.)**		Variable 1 : **Seed Size (sd./lb.)**	
Cases 1 through 5		Cases 6 through 10	
Mean:	1340.00	Mean:	1528.00
Variance:	964.50	Variance:	1107.50
Standard Deviation:	31.06	Standard Deviation:	33.28

F-TEST FOR THE HYPOTHESIS "VARIANCE 1 = VARIANCE 2"

F Value:	1.1483
Numerator degrees of freedom:	4
Denominator degrees of freedom:	4
Probability:	0.8966

Result: Non-Significant F - Accept the Hypothesis

T-TEST FOR THE HYPOTHESIS "MEAN 1 = MEAN 2"

Pooled s squared:	1036.0000
Variance of the difference between the means:	414.4000
Standard Deviation of the difference:	20.3568
t Value:	-9.2352
Degrees of freedom:	8
Probability of t:	0.0000

Result: Significant t - Reject the Hypothesis
Confidence limits for the difference of the means (for alpha=0.05):
188.000 plus or minus 46.943 (141.057 through 234.943)

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2003 Plant Variety Protection Beak
Measurement T-Test for 99124 vs. Beryl

Data file: 124-BERYL
Title: **2003 99124 vs Beryl PVP**

Function: T-TEST

SAMPLE ONE: **GN 99124**		SAMPLE TWO: **GN Beryl**	
Variable 3 : **Beak (mm)**		Variable 3 : **Beak (mm)**	
Cases 1 through 20		Cases 21 through 40	
Mean:	10.00	Mean:	8.30
Variance:	1.68	Variance:	2.33
Standard Deviation:	1.30	Standard Deviation:	1.53

F-TEST FOR THE HYPOTHESIS "VARIANCE 1 = VARIANCE 2"

F Value:	1.3813
Numerator degrees of freedom:	19
Denominator degrees of freedom:	19
Probability:	0.4881

Result: Non-Significant F - Accept the Hypothesis

T-TEST FOR THE HYPOTHESIS "MEAN 1 = MEAN 2"

Pooled s squared:	2.0053
Variance of the difference between the means:	0.2005
Standard Deviation of the difference:	0.4478
t Value:	3.7963
Degrees of freedom:	38
Probability of t:	0.0005

Result: Significant t - Reject the Hypothesis
Confidence limits for the difference of the means (for alpha=0.05):
1.700 plus or minus 0.907 (0.793 through 2.607)

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Exhibit C

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

OBJECTIVE DESCRIPTION OF VARIETY
Field Bean (*Phaseolus vulgaris* L.)

NAME OF APPLICANT (S)	TEMPORARY OR EXPERIMENTAL DESIGNATION	VARIETY NAME
Kelley Bean Co. Inc.	99124	'Orion'

ADDRESS (Street and No. or RD No., City, State, Zip Code, and Country)
2407 Circle Drive
P.O. Box 2488
Scottsbluff, NE 69363-2488

[redacted]

PVPO NUMBER
20040176

PLEASE READ ALL INSTRUCTIONS CAREFULLY:

Provide data for all characters unless indicated as "optional". Place numbers in the boxes for the characters or numerical values that best describe this variety. Measured data should be the mean of an appropriate number of well spaced (15-20 cm) plants. The Royal Horticultural Society or any recognized color standard may be used to determine plant color. Designate the color system used below.

COLOR SYSTEM USED:

LOCATION OF THE TEST(S) TO EVALUATE THIS VARIETY:
Southern Idaho: Nampa and Twin Falls

1. MARKET CLASS:

[5]

CLASS	CHECK
1 = Navy (Pea)	Seafarer
2 = Small White	Aurora
3 = Black	Midnight
4 = Pinto	UI-114
5 = Great Northern	UI-59
6 = Small Red	NW-59
7 = Pink	Viva
8 = Cranberry	UI-50
9 = Dark Red Kidney	Montclaim
10 = Light Red Kidney	Redkloud
11 = Yellow Eye	Steuben
12 = Other (Specify _____	

2 = MATURITY:

[2] 1 = Early (80-90 days) 2 = Medium (90-100 Days) 3 = Late (> 100 Days)

[9][0] Days from Planting to Harvest Maturity

[ ][ ][ ][ ] Heat Units from Planting to Harvest Maturity (Optional). Specify Base Temperature Used: _____

[8][3] Days from Planting to Harvest Maturity of Check Variety (Use Check Appropriate to Market Class Shown in Item 1)

3. PLANT HABIT:

TYPE

- [ ] 1 = Ia Bush-determinate, Strong and Erect Stem and Branches
- [ ] 2 = Ib Bush-determinate, Weak Stem and Branches
- [ ] 3 = IIa Erect Growth Habit-indeterminate, Guides (Runners) short or not developed
- [X] 4 = IIb Erect Growth Habit-indeterminate, Guides Medium to Long, with no Ability to Climb
- [ ] 5 = IIIa Vine-indeterminate, Short Guides with no ability to Climb
- [ ] 6 = IIIb Vine-indeterminate, Long Guides with Ability to Climb
- [ ] 7 = IVa Indeterminate Climbing, Pods Distributed Throughout the Plant
- [ ] 8 = IVb Indeterminate Climbing, Pods Concentrated on the Upper Part of the Plant

[4][6] Average Height of Mature Plant, in cm.

[3][9] Average Height of Check Variety, in cm. (Use Same Check as Above)

[3] Pod Position: 1 = Low (Lower Pods Touching Soil Surface) 2 = High (Lower Pods not Touching Soil Surface) 3 = Scattered (Not Concentrated High or Low)

[1] Adaptability to Machine Harvest: 1 = Adapted 2 = Not Adapted

[2] Lodging Resistance: 1 = Good 2 = Fair 3 = Poor

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4. LEAFLET MORPHOLOGY: (Use terminal Leaflet of a Fully Expanded Trifoliolate)

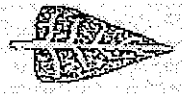
[2] 1 = Smooth 2 = Wrinkled

[3] 1 = Dull 2 = Glossy 3 = Semiglossy 4 = Variable

Shape: [1]

1 = Ovate 

2 = Lanceolate 

3 = Deltoid 

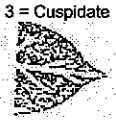
4 = Cordate 

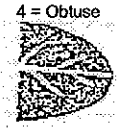
5 = Rhomboid 

Apex of Leaflet: [2]

1 = Acute 

2 = Acuminate 

3 = Cuspidate 

4 = Obtuse 

Base of Leaflet: [1]

1 = Obtuse 

2 = Oblique 

3 = Cordate 

4 = Cuneate 

5 = Attentuate 

5. FLOWER COLOR AND DAYS TO BLOOM:

[1] Color of Standard: 1 = White 2 = Cream 3 = Pink 4 = Blue 5 = Purple

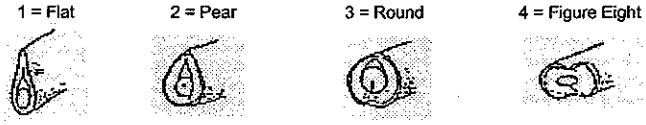
[1] Color of Keel: 1 = White 2 = Cream 3 = Pink 4 = Blue 5 = Purple

[1] Color of Wings: 1 = White 2 = Cream 3 = Pink 4 = Blue 5 = Purple

[4][4] Days to 50% Bloom

6. POD MORPHOLOGY: (Green Pod Morphology Optional)

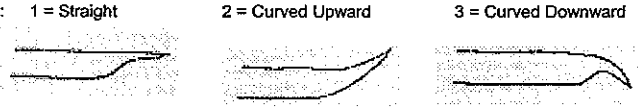
Green	Mature								
[1]	[1]	Color Pattern:	1 = Solid	2 = Striped	3 = Blotched	4 = Mottled	5 = Other _____		
[3]	[4]	Primary Color:	1 = Purple	2 = Red	3 = Green	4 = Yellow	5 = Tan	6 = Brown	7 = Other _____
[3]	[2]	Color Modifier:	1 = Light	2 = Light Medium	3 = Medium	4 = Medium Dark	5 = Dark		
[NA]	[NA]	Secondary Color:	1 = Purple	2 = Red	3 = Green	4 = Yellow	5 = Tan	6 = Brown	7 = Other _____
[2]	[2]	Cross Section Shape:	1 = Flat	2 = Pear	3 = Round	4 = Figure Eight			



[2] [2] Pod Curvature 1 = Straight 2 = Slightly Curved

3 = Curved 4 = Recurved

[3] [3] Pod Beak Orientation: 1 = Straight 2 = Curved Upward 3 = Curved Downward 4 = Variable



Average Beak Length, in cm. 1.1

[2] [2] Constrictions: 1 = None 2 = Slight 3 = Deep

[5].[0] Average Number of Seeds per Pod

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7. SEED COLOR:

[3] 1 = Shiny 2 = Dull 3 = Semishiny 4 = Variable

[1] 1 = Monochrome 2 = Polychrome

[0 1] Primary Color: 1 = White 2 = Yellow 3 = Buff 4 = Tan 5 = Brown 6 = Pink 7 = Red 8 = Purple 9 = Blue 10 = Black 11 = Other _____

[0 0] Secondary Color: 1 = White 2 = Yellow 3 = Buff 4 = Tan 5 = Brown 6 = Pink 7 = Red 8 = Purple 9 = Blue 10 = Black 11 = Other _____

[1] Color Pattern: 1 = Solid 2 = Splashed 3 = Mottled 4 = Striped 5 = Flecked 6 = Dotted

[1] Hilar Ring: 1 = Absent 2 = Present

[0 0] Hilar Ring Color: 1 = White 2 = Yellow 3 = Buff 4 = Tan 5 = Brown 6 = Pink 7 = Red 8 = Purple 9 = Blue 10 = Black 11 = Other _____

8. SEED SHAPE AND WEIGHT:

[3] Shape of Seed Taken From Middle of Pod: 1 = Round 2 = Oval 3 = Cuboid 4 = Kidney 5 = Truncate Fastigate

[3 4] Dry Seed Weight in g/100g Seeds (Adjusted to 12% Moisture)

9. ANTHOCYANIN PIGMENTATION:

1 = Absent
2 = Present

[1] Flowers [1] Stems [1] Pods [1] Seeds

[1] Leaves [1] Petioles [1] Peduncles [1] Nodes

10. KNOWN DISEASE REACTION:

DISEASES – COMMON NAME: Anthracnose, Rust, Powdery Mildew, Fusarium Root Rot, Pythium Root Rot, Rhizoctonia Root Rot, Pythium Wilt, Sclerotinia White Mold, angular Leaf Spot, Bacterial Wilt, Halo Blight, Fuscous Blight, Common Bacterial Blight, Red Node Virus, Pod Mottle Virus, Bean Common Mosaic Virus, Bean Yellow Mosaic Virus, Curly Top Virus, Bacterial Brown Spot, Bean Southern Mosaic Virus, Other (Specify) _____

Reaction: 1 = Susceptible 2 = Resistant 3 = Tolerant 4 = Avoidance

(Give the Common Name (CN), Scientific Name (SN), and Race(s), Where Applicable)

[NA] Disease: CN Bean Common Mosaic Virus; SN _____; Race(s) all non-necrotic races;

[NA] Disease: CN _____; SN _____; Race(s) _____;

[NA] Disease: CN _____; SN _____; Race(s) _____;

[NA] Disease: CN _____; SN _____; Race(s) _____;

[NA] Disease: CN _____; SN _____; Race(s) _____;

[NA] Disease: CN _____; SN _____; Race(s) _____;

11. KNOWN INSECT/NEMATODE RESISTANCE:

PESTS – COMMON NAME: Aphids, Bean Pod Weevil, Bruchid Beetle, Corn Earworm, Flea Beetle, Leaf Hopper, Lesion Nematode, Lygus, Mexican Bean Beetle, Root Know Nematode, Corn Seed Maggot, Spider Mites, Thrips, Weevils, Western Bean Cutowrm, Other (Specify) _____

Reaction: 1 = Susceptible 2 = Resistant 3 = Tolerant 4 = Avoidance

(Give the Common Name (CN), Scientific Name (SN), and Race(s), Where Applicable)

[NA] Pest: CN _____; SN _____; Race(s) _____;

[NA] Pest: CN _____; SN _____; Race(s) _____;

[NA] Pest: CN _____; SN _____; Race(s) _____;

12. KNOWN PHYSIOLOGICAL STRESS REACTION:

1 = Susceptible 2 = Resistant
3 = Tolerant 4 = Avoidance

[NA] Heat [NA] Cold [NA] Drought [NA] Air Pollution

10

13. COMMENTS: Variety 99124 carries the "I" gene which confers resistance to virus strains that are non necrotic. The same gene confers susceptability to "top necrosis" or "black root" when infected with the "necrotic" strains of the virus.

Exhibit D
Additional Description of Variety

Following are the T-tests analyzing the difference between UI-59 and 99124 for the following three measurements.

1. Beak length
2. Vine length
3. Seed/pod

200400176

2001 and 2003 Combined Plant Variety Protection
Beak Measurement T-Test for 99124 vs. UI-59

Data file: _99124_
Title: **2001 and 2003 Combined PVP 99124 VS UI59**

Function: T-TEST

SAMPLE ONE: **GN 99124**		SAMPLE TWO: **GN UI-59**	
Variable 3 : **beak (mm)**		Variable 3 : **beak (mm)**	
Cases 1 through 30		Cases 41 through 70	
Mean:	10.37	Mean:	8.90
Variance:	1.83	Variance:	12.71
Standard Deviation:	1.35	Standard Deviation:	3.57

F-TEST FOR THE HYPOTHESIS "VARIANCE 1 = VARIANCE 2"

F Value:	6.9610
Numerator degrees of freedom:	29
Denominator degrees of freedom:	29
Probability:	0.0000

Result: Significant F - Reject the Hypothesis

T-TEST FOR THE HYPOTHESIS "MEAN 1 = MEAN 2"

Variance of the difference between the means:	0.4847
Standard Deviation of the difference:	0.6962
t' Value:	2.1067
Effective degrees of freedom:	37
Probability of t':	0.0395

Result: Significant t - Reject the Hypothesis
Confidence limits for the difference of the means (for alpha=0.05):
1.467 plus or minus 1.411 (0.056 through 2.877)

2003 Plant Variety Protection Beak Measurement
T-Test for 99124 vs. UI-59

Data file: _99124_
Title: **2003 PVP 99124 VS UI-59**

Function: T-TEST

SAMPLE ONE: **GN 99124**		SAMPLE TWO: **GN UI-59**	
Variable 3 : **beak (mm)**		Variable 3 : **beak (mm)**	
Cases 1 through 20		Cases 41 through 60	
Mean:	10.00	Mean:	7.95
Variance:	1.68	Variance:	16.05
Standard Deviation:	1.30	Standard Deviation:	4.01

F-TEST FOR THE HYPOTHESIS "VARIANCE 1 = VARIANCE 2"

F Value:	9.5297
Numerator degrees of freedom:	19
Denominator degrees of freedom:	19
Probability:	0.0000

Result: Significant F - Reject the Hypothesis

T-TEST FOR THE HYPOTHESIS "MEAN 1 = MEAN 2"

Variance of the difference between the means:	0.8867
Standard Deviation of the difference:	0.9417
t' Value:	2.1770
Effective degrees of freedom:	22
Probability of t':	0.0358

Result: Significant t - Reject the Hypothesis
Confidence limits for the difference of the means (for alpha=0.05):
2.050 plus or minus 1.953 (0.097 through 4.003)

2001 Plant Variety Protection Beak Measurement
T-Test for 99124 vs. UI-59

Data file: _99124_
Title: **2001 PVP 99124 VS UI59**

Function: T-TEST

SAMPLE ONE: **GN 99124**		SAMPLE TWO: **GN UI-59**	
Variable 3 : **beak (mm)**		Variable 3 : **beak (mm)**	
Cases 21 through 30		Cases 61 through 70	
Mean:	11.10	Mean:	10.80
Variance:	1.43	Variance:	1.07
Standard Deviation:	1.20	Standard Deviation:	1.03

F-TEST FOR THE HYPOTHESIS "VARIANCE 1 = VARIANCE 2"

F Value:	1.3438
Numerator degrees of freedom:	9
Denominator degrees of freedom:	9
Probability:	0.6670

Result: Non-Significant F - Accept the Hypothesis

T-TEST FOR THE HYPOTHESIS "MEAN 1 = MEAN 2"

Pooled s squared:	1.2500
Variance of the difference between the means:	0.2500
Standard Deviation of the difference:	0.5000
t Value:	0.6000
Degrees of freedom:	18
Probability of t:	0.5560

Result: Non-Significant t - Accept the Hypothesis
Confidence limits for the difference of the means (for alpha=0.05):
0.300 plus or minus 1.050 (-0.750 through 1.350)

2001 and 2003 Combined Plant Variety Protection
Vine Length (in.) T-Test for 99124 vs. UI-59

Data file: _99124_
Title: **2001 and 2003 Combined PVP 99124 VS UI-59**

Function: T-TEST

SAMPLE ONE: **GN 99124**		SAMPLE TWO: **GN UI-59**	
Variable 1 : **Vine Length (IN)**		Variable 1 : **Vine Length (IN)**	
Cases 1 through 40		Cases 41 through 80	
Mean:	34.01	Mean:	43.23
Variance:	62.75	Variance:	56.46
Standard Deviation:	7.92	Standard Deviation:	7.51

F-TEST FOR THE HYPOTHESIS "VARIANCE 1 = VARIANCE 2"

F Value:	1.1114
Numerator degrees of freedom:	39
Denominator degrees of freedom:	39
Probability:	0.7432

Result: Non-Significant F - Accept the Hypothesis

T-TEST FOR THE HYPOTHESIS "MEAN 1 = MEAN 2"

Pooled s squared:	59.6054
Variance of the difference between the means:	2.9803
Standard Deviation of the difference:	1.7263
t Value:	-5.3364
Degrees of freedom:	78
Probability of t:	0.0000

Result: Significant t - Reject the Hypothesis
Confidence limits for the difference of the means (for alpha=0.05):
9.212 plus or minus 3.437 (5.776 through 12.649)

2003 Plant Variety Protection Vine Length (in.)
T-Test for 99124 vs. UI-59

Data file: _99124_
Title: **2003 PVP 99124 VS UI-59**

Function: T-TEST

SAMPLE ONE: **GN 99124**		SAMPLE TWO: **GN UI-59**	
Variable 1 : **Vine Length (in.)**		Variable 1 : **Vine Length (in.)**	
Cases 1 through 20		Cases 41 through 60	
Mean:	34.80	Mean:	41.65
Variance:	59.83	Variance:	71.08
Standard Deviation:	7.73	Standard Deviation:	8.43

F-TEST FOR THE HYPOTHESIS "VARIANCE 1 = VARIANCE 2"

F Value:	1.1881
Numerator degrees of freedom:	19
Denominator degrees of freedom:	19
Probability:	0.7110

Result: Non-Significant F - Accept the Hypothesis

T-TEST FOR THE HYPOTHESIS "MEAN 1 = MEAN 2"

Pooled s squared:	65.4539
Variance of the difference between the means:	6.5454
Standard Deviation of the difference:	2.5584
t Value:	-2.6775
Degrees of freedom:	38
Probability of t:	0.0109

Result: Significant t - Reject the Hypothesis
Confidence limits for the difference of the means (for alpha=0.05):
6.850 plus or minus 5.179 (1.671 through 12.029)

2001 Plant Variety Protection Vine Length (in.)
T-Test for 99124 vs. UI-59

Data file: _99124_
Title: **2001 PVP 99124 VS UI-59**

Function: T-TEST

SAMPLE ONE: **GN 99124**		SAMPLE TWO: **GN UI-59**	
Variable 1 : **Vine Length (IN)**		Variable 1 : **Vine Length (IN)**	
Cases 21 through 40		Cases 61 through 80	
Mean:	33.23	Mean:	44.80
Variance:	67.67	Variance:	39.59
Standard Deviation:	8.23	Standard Deviation:	6.29

F-TEST FOR THE HYPOTHESIS "VARIANCE 1 = VARIANCE 2"

F Value:	1.7093
Numerator degrees of freedom:	19
Denominator degrees of freedom:	19
Probability:	0.2516

Result: Non-Significant F - Accept the Hypothesis

T-TEST FOR THE HYPOTHESIS "MEAN 1 = MEAN 2"

Pooled s squared:	53.6299
Variance of the difference between the means:	5.3630
Standard Deviation of the difference:	2.3158
t Value:	-4.9982
Degrees of freedom:	38
Probability of t:	0.0000

Result: Significant t - Reject the Hypothesis
Confidence limits for the difference of the means (for alpha=0.05):
11.575 plus or minus 4.688 (6.887 through 16.263)

2001 and 2003 Combined Plant Variety Protection
Seed per Pod T-Test for 99124 vs. UI-59

Data file: _99124_
Title: **2001 and 2003 Combined PVP 99124 VS UI-59**

Function: T-TEST

SAMPLE ONE: GN 99124		**SAMPLE TWO: GN UI-59**	
Variable 2 : **Seed per pod**		Variable 2 : **Seed per pod**	
Cases 1 through 40		Cases 41 through 80	
Mean:	4.78	Mean:	5.25
Variance:	1.72	Variance:	1.06
Standard Deviation:	1.31	Standard Deviation:	1.03

F-TEST FOR THE HYPOTHESIS "VARIANCE 1 = VARIANCE 2"

F Value:	1.6139
Numerator degrees of freedom:	39
Denominator degrees of freedom:	39
Probability:	0.1394

Result: Non-Significant F - Accept the Hypothesis

T-TEST FOR THE HYPOTHESIS "MEAN 1 = MEAN 2"

Pooled s squared:	1.3907
Variance of the difference between the means:	0.0695
Standard Deviation of the difference:	0.2637
t Value:	-1.8013
Degrees of freedom:	78
Probability of t:	0.0755

Result: Non-Significant t - Accept the Hypothesis
Confidence limits for the difference of the means (for alpha=0.05):
0.475 plus or minus 0.525 (-0.050 through 1.000)

2003 Plant Variety Protection Seed per Pod
T-Test for 99124 vs. UI-59

Data file: _99124_
Title: **2003 PVP 99124 VS UI-59**

Function: T-TEST

SAMPLE ONE: **GN 99124**		SAMPLE TWO: **GN UI-59**	
Variable 2 : **Seed per pod**		Variable 2 : **Seed per pod**	
Cases 1 through 20		Cases 41 through 60	
Mean:	3.90	Mean:	5.10
Variance:	1.15	Variance:	1.36
Standard Deviation:	1.07	Standard Deviation:	1.17

F-TEST FOR THE HYPOTHESIS "VARIANCE 1 = VARIANCE 2"

F Value:	1.1835
Numerator degrees of freedom:	19
Denominator degrees of freedom:	19
Probability:	0.7172

Result: Non-Significant F - Accept the Hypothesis

T-TEST FOR THE HYPOTHESIS "MEAN 1 = MEAN 2"

Pooled s squared:	1.2526
Variance of the difference between the means:	0.1253
Standard Deviation of the difference:	0.3539
t Value:	-3.3905
Degrees of freedom:	38
Probability of t:	0.0016

Result: Significant t - Reject the Hypothesis
Confidence limits for the difference of the means (for alpha=0.05):
1.200 plus or minus 0.716 (0.484 through 1.916)

2001 Plant Variety Protection Seed per Pod
T-Test for 99124 vs. UI-59

Data file: _99124_
Title: **2001 PVP 99124 VS UI-59**

Function: T-TEST

SAMPLE ONE: **GN 99124**		SAMPLE TWO: **GN UI-59**	
Variable 2 : **Seed per Pod**		Variable 2 : **Seed per Pod**	
Cases 21 through 40		Cases 61 through 80	
Mean:	5.65	Mean:	5.40
Variance:	0.77	Variance:	0.78
Standard Deviation:	0.88	Standard Deviation:	0.88

F-TEST FOR THE HYPOTHESIS "VARIANCE 1 = VARIANCE 2"

F Value:	1.0172
Numerator degrees of freedom:	19
Denominator degrees of freedom:	19
Probability:	0.9708

Result: Non-Significant F - Accept the Hypothesis

T-TEST FOR THE HYPOTHESIS "MEAN 1 = MEAN 2"

Pooled s squared:	0.7724
Variance of the difference between the means:	0.0772
Standard Deviation of the difference:	0.2779
t Value:	0.8996
Degrees of freedom:	38
Probability of t:	0.3740

Result: Non-Significant t - Accept the Hypothesis
Confidence limits for the difference of the means (for alpha=0.05):
0.250 plus or minus 0.563 (-0.313 through 0.813)

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U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

Application is required in order to determine if a plant variety protection certificate is to be issued *(7 U.S.C. 2421)*. The information is held confidential until the certificate is issued *(7 U.S.C. 2426)*.

1. NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME
Kelley Bean Co. Inc.	99124	'Orion'

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP, and Country)*	5. TELEPHONE *(Include area code)*	6. FAX *(Include area code)*
2407 Circle Drive P.O. Box 2488 Scottsbluff, NE 69363-2488	(308) 635-6438	(308) 635-6899

7. PVPO NUMBER: 200400176

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. **If no, please explain.** ☒ YES ☐ NO

9. Is the applicant (individual or company) a U.S. national or a U.S. based company? **If no, give name of country.** ☒ YES ☐ NO

10. Is the applicant the original owner? ☒ YES ☐ NO **If no, please answer one of the following:**

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?
☐ YES ☐ NO **If no, give name of country**

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?
☐ YES ☐ NO **If no, give name of country**

11. Additional explanation on ownership *(Trace ownership from original breeder to current owner. Use the reverse for extra space if needed)*:

Dr. Ronald Shellenberger, plant breeder doing business as ProVita, Inc. has a contractual agreement to provide a plant breeding and variety development service on great northern beans to Kelley Bean Co. Inc.. Kelley Bean Co. Inc. pays consulting fees and expenses to ProVita Inc. for which Kelley Bean Co. Inc. retains ownership of all great northern bean varieties developed under agreement.

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.

2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.

3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.